

**Notice of Allowability**

Application No.

10/605,500

Examiner

Usmaan Saeed

Applicant(s)

SHEN, CHENG-CHUNG

Art Unit

2166

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment dated 9/27/2006.
2. ☒ The allowed claim(s) is/are 1-20 (renumbered as 1-16).
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

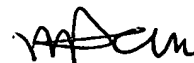
\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),  
Paper No./Mail Date 10/11/06.
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☒ Other See Continuation Sheet.



**HOSAIN ALAM**  
**SUPERVISORY PATENT EXAMINER**

Continuation of Attachment(s) 9. Other: A copy of the attorneys fax regarding the proposed examiner's amendment with some further changes made by the examiner with applicant's approval is also attached.

### DETAILED ACTION

1. This communication is in response to the amendment filed on 9/27/2006.

After thorough search and examination of the present application and in light of the prior art made of record, claims 1-20 (renumbered as 1-16) are allowed.

Claims 2, 4, 11 and 13 have been cancelled.

### EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview/Fax with Attorney, Winston Hsu, Registration No. 41,526 on October 11, 2006.

A copy of the attorneys fax regarding the proposed examiner's amendment with some further changes made by the examiner with applicant's approval is also attached.

**Please amend the claims, which were filed on 9/27/2006 with new versions as follows:**

Art Unit: 2166

1. (Currently Amended) A method for computerized extracting of scheduling information from a natural language text for automatic entry into a calendar application, the method comprising the following steps:

(a) parsing the natural language text to build a dependency tree by segmenting each sentence in the natural language text into words, building the dependency tree containing dependency pairs by comparing word pairs in the natural language text with a dependency database, and adding the word pairs found in the dependency database as dependency pairs to the dependency tree;

(b) determining if the natural language text contains scheduling information by calculating a probability sum for the dependency tree; and

(c) if the probability sum exceeds a predetermined value, extracting scheduling information from the dependency tree and exporting the scheduling information to the calendar application;

wherein building the dependency database includes the following steps:

segmenting each sentence in a text corpus into words, wherein the text corpus contains a plurality of sample natural language texts containing scheduling information;

Art Unit: 2166

for each sentence in the text corpus, checking all possible combinations of word pairs to determine if the word pair has a high co-occurrence in the text corpus;

if the word pair has a the high co-occurrence in the text corpus, determining ~~the~~ a head word using a tagged corpus, and checking the validity of the word pair using violation constraints, wherein the tagged corpus specifies ~~the~~ actual head words for sentences relevant to scheduling information in the text corpus and contains dependencies for all other words with respect to the actual head words, and the violation constraints specify illegal dependency structures;

if the word pair is a valid dependency pair, computing ~~the~~ a probability of the word pair, adding the word pair as a dependency pair to the dependency database, and adding the probability of the dependency pair to the dependency database, wherein the probability of the dependency pair corresponds to ~~the~~ a frequency of the word pair in the text corpus; and

repeating the above steps until no new dependency pairs are identified.

2. (Canceled)

3. (Currently Amended) The method of claim 1, wherein when building the dependency tree:

for each sentence in the natural language text, forming a head word list of all possible head words in the sentence; and

pairing each word in each sentence in the natural language text with the possible head words in the head word list to form a the word pair, wherein if the word pair formed by the word and ~~the~~ a possible head word is found in the dependency database, adding the word pair formed by the word and the possible head word as a the dependency pair to the dependency tree.

4. (Canceled)

5. (Currently Amended) The method of claim 1, wherein determining if the natural language text contains scheduling information further comprises calculating a the probability sum for the natural language text by adding up probabilities for all the dependency pairs in the dependency tree, the probability of each dependency pair corresponding to the frequency of the dependency pair in a the text corpus, the text corpus containing a plurality of sample natural language texts containing scheduling information.

10. (Currently Amended) A personal organization apparatus comprising:

Art Unit: 2166

a processor for executing code in the personal organization apparatus; and

a storage unit connected to the processor for storing data used by the processor including a natural language text, the storage unit including a dependency database, the dependency database specifying a plurality of dependency pairs and the a corresponding probability of each dependency pair, each dependency pair being a word pair found in a text corpus, the probability of the dependency pair corresponding to the a frequency of the word pair in the text corpus, and the text corpus including a plurality of sample natural language texts containing scheduling information; ~~and~~

wherein the processor parses the natural language text to build a dependency tree in the storage unit, determines if the natural language text contains scheduling information by calculating a probability sum for the dependency tree, and if the probability sum exceeds a predetermined value, extracts scheduling information from the dependency tree and exports the scheduling information to a calendar application;

the processor also builds the dependency tree in the storage unit containing dependency pairs by comparing word pairs in the natural language text with the dependency database and adding the word pairs found in the dependency database as dependency pairs to the dependency tree, calculates a the probability sum for the natural language text by adding up probabilities for all the dependency pairs in the dependency tree, and if the probability sum exceeds a predetermined sum, extracts

Art Unit: 2166

scheduling information from the dependency tree and exports the scheduling information to a the calendar application; and

the processor further builds the dependency database using the text corpus, wherein for each sentence in the text corpus, the processor checks all possible combinations of the word pairs to determine if the word pair has a high co-occurrence in the text corpus; if the word pair has a the high co-occurrence in the text corpus, the processor determines the a head word using a tagged corpus, and checks the validity of the word pair using violation constraints, wherein the tagged corpus specifies actual head words for sentences relevant to scheduling information in the text corpus and contains dependencies for all other words with respect to the actual head words, and the violation constraints specify illegal dependency structures; and if the word pair is a valid dependency pair, the processor determines the frequency of the word pair in the text corpus and adds the word pair as a the dependency pair to the dependency database and adds the frequency of the word pair as the probability of the dependency pair to the dependency database.

11. (Canceled)

12. (Currently Amended) The personal organization apparatus of claim 10, wherein when the processor builds the dependency tree:

Art Unit: 2166

for each sentence in the natural language text, the processor forms a head word list of all possible head words in the sentence, the head word list being stored in the storage unit; and

the processor pairs each word in each sentence in the natural language text with the possible head words in the head word list, wherein if the word pair formed by the word and the possible head word is found in the dependency database, the processor adds the word pair formed by the word and the possible head word as a the dependency pair to the dependency tree.

13. (Canceled)

### ***Reason for Allowance***

3. The prior art made of record does not teach or fairly suggest the combination of elements, as recited in independent claims 1, and 10. More specifically, the prior art of records does not specifically suggest "if the word pair has a high co-occurrence in the text corpus, determining the head word using a tagged corpus, and checking the validity of the word pair using violation constraints, wherein the tagged corpus specifies the actual head words for sentences relevant to scheduling information in the text corpus and contains dependencies for all other words with respect to the actual head words,

Art Unit: 2166

and the violation constraints specify illegal dependency structures" in combination with all the other limitations in the claims.

These features together with other limitations of the independent claims are novel and non-obvious over the prior art of record. The dependent claims 3, 5-9, 12, and 14-20 being definite, enabled by the specification, and further limiting to the independent claims, are also allowable.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### ***Contact Information***


4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Usmaan Saeed whose telephone number is (571)272-4046. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hosain Alam can be reached on (571)272-3978. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

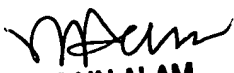
Art Unit: 2166

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Usmaan Saeed  
Patent Examiner  
Art Unit: 2166

Leslie Wong   
Primary Examiner

US  
October 13, 2006

  
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SUPERVISORY PATENT EXAMINER